



Are Men's and Women's Brains Truly Different?

Understanding myths and facts about male and female minds

[Engage Your Brain \(../.. /brain-health-topic/all/engage-your-brain\)](#),
[Memory \(../.. /brain-health-topic/all/memory\)](#)

There's growing evidence that women's and men's brains work differently. Recent studies even seem to bolster some gender-based myths, but the facts are usually *waaay* more complex — and well-worn statements about men's and women's abilities are loaded with caveats. So are males really better than females at math? Are women more generous than men? Here are five myths and the complicated truths behind each.

Myth or Fact: Men are better than women at math.

MYTH

Men just think they're better. Males overestimate their math abilities, a study in the journal *Sex Roles* found, even though research shows that males and females perform equally well in mathematics. So why does the math myth persist? Many psychologists blame cultural stereotypes and parental and societal expectations for how females view their math abilities. In a Florida State University study, girls rated their math skills ([/activities/tricks-doing-math?intcmp=AE-SSS-ART-IL](#)) significantly lower than boys did, despite no detectable differences in skill levels. Girls can carry those skewed views into adulthood. Women tend to have higher levels of math anxiety and underestimate their own abilities, one study found, which may lead fewer women to pursue math-related careers.

Myth or Fact: Women are better listeners than men.

FACT

When women listen, both the left and right hemispheres ([/articles/gender-brain-health?intcmp=AE-SSS-ART-IL](#)) of the brain are involved, as opposed to just the left for men, an Indiana University School of Medicine study found. And women are typically more engaged listeners ([/articles/conversation-memory?intcmp=AE-SSS-ART-IL](#)) than men, says Catherine Franssen, the director of neurostudies and an associate professor in the Department of



Staying Sharp

Psychology at Longwood University. “This may be related to women’s tendency to speak more, ask more questions and look more closely at body language (/activities/communication-styles?intcmp=AE-SSS-ART-IL) when listening,” she says. Women listen with their eyes, ears and sometimes whole body, she adds, while men have learned to obtain facts, make a judgment and fix the problem. “These differences are slight and doesn’t mean one gender is better than the other,” says Franssen.

Myth or Fact: Men’s brains are more active than women’s.

MYTH

The opposite is true. A study of more than 46,000 brain scans found that women’s brains are much more active than men’s. This was particularly true in the prefrontal cortex, the part of the brain that’s involved with areas such as focus, impulse control, anxiety and mood. This may be a mixed blessing, however. The study might explain why women tend to be better at things such as intuition, multitasking (/articles/multitask-distraction?intcmp=AE-SSS-ART-IL), self-control, empathy and working with others, and may be more vulnerable to depression, insomnia, anxiety and eating disorders.

Myth or Fact: Men have a better sense of direction than women.

FACT

When researchers at the Norwegian University of Science and Technology (NUST) used a virtual maze to test navigation skills, men solved 50 percent more of the tasks than women did. Women and men have different navigational strategies (/articles/brain-compass-gps?intcmp=AE-SSS-ART-IL), the study authors theorize, though the reasons for this are unknown. Possibilities include not only differences in how men and women use their hippocampus (/activities/furniture-assembly?intcmp=AE-SSS-ART-IL), but also gender discrimination (NUST tested subjects with video games (/articles/3d-video-games-brain?intcmp=AE-SSS-ART-IL), for example, and men typically play more video games than women do). Whatever the reason, men often employ more effective strategies and reach their destinations faster, says Franssen. Men are also more likely to use cardinal directions (north, south, east, west) and take shortcuts, she says. Women take a “self-centered” approach and typically use routes they know — for example, go past the grocery store and turn left at the red brick building with the green awning.

Myth or Fact: Women are less selfish than men.



Staying Sharp

FACT

Women are more likely to experience a flood of dopamine (</articles/brain-benefits-love?intcmp=AE-SSS-ART-IL>) — a pleasure-inducing neurotransmitter — when they perform selfless acts or are generous, research from the University of Zurich shows. When women shared, their brain's reward center, called the striatum, was activated. For men, however, their striatum fired up when they acted in a selfish and self-centered way. But scientists admit this gender difference may be less “nature” and more “nurture.” From an early age, girls may receive more positive feedback for pro-social behavior than boys.

Myth or Fact: Men's brains age more rapidly than women's brains.

FACT

Metabolically speaking, women's brains appear to be almost four years younger than men's brains of the same age, a study from the Washington University School of Medicine in St. Louis found. That means a 65-year-old woman's brain is more like the brain of a 61-year-old man. But there's a catch. “Healthy women's brains will age better than healthy men, but unhealthy women may not age as well as unhealthy men,” says Franssen. Factors such as hypertension or obesity (</articles/bmi-affects-on-memory?intcmp=AE-SSS-ART-IL>), for example, might affect aging in the female brain more negatively than in males, she says. And when estrogen plummets after menopause, so does brain metabolism, one reason women are more vulnerable than men to Alzheimer's disease, depression and anxiety disorders. —Laura Daily

Want to dig a little deeper?

Find out more about Women and Brain Health (</themes/women-brain-health?intcmp=AE-SSS-ART-IL>).
